

REMARKS

Review and reconsideration on merits are requested.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 3, 4 and 6-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 7,445,678 B2 Mishima et al in view of U.S. 3,235,373 Perry et al.

Applicants avoid the rejection by filing herewith a certified translation of their priority document.

The present application claims priority based on Japanese Patent Application 2003-349559, filed October 8, 2003.

Mishima et al is available as priori art under 35 U.S.C. § 102(e) as of November 19, 2003 and under 35 U.S.C. § 102(a) as of May 20, 2004 and November 4, 2008.

Applicants priority date is seen to be earlier than any date which Mishima can claim as prior art.

COMPARISON OF CLAIMS TO CERTIFIED TRANSLATION

The pending claims have been reproduced and support in the certified translation is provided after each limitation, the basis being given in bold.

The abbreviation “P” stands for page and the abbreviation “L” stands for line.

1. A method of producing a steel ingot, which comprises the steps of **P4 [0005]; P5, L1-3; P6, L15.:**

preparing molten steel under vacuum **P5, L9-12; P6, L4-7; P6, L18-22.;**
forming magnesium oxides by adding Mg into the molten steel in order to make oxides

contained in the molten steel so as to have a chemical composition a primary component of which is MgO P4, [0005], P5, L4-8;

subsequently producing a consumable electrode from the molten steel containing magnesium oxides P23, L2-P24, L3; P26, L3-27; **repeated use if electrode in the specification at P27⁺**; and

remelting the consumable electrode under higher vacuum than that of the former process of forming the magnesium oxides in order to dissociate the magnesium oxides contained in the molten steel into Mg and oxygen thereby making a Mg content in the molten steel to be not more than 50% of that in the former process of forming magnesium oxides P5, L9-15; P5, L25 - P6, L11..

3. The method according to claim 1, wherein the remelting is of a vacuum arc remelting P6, L11, 12; P24, L9, 10.

4. The method according to claim 1 , wherein the steel ingot contains a nitride forming element as a component of the steel P6, L13-16.

5. The method according to claim 1, wherein the degree of vacuum in the first step of forming a magnesium oxide is 6 kPa to 60 kPa and the degree of vacuum in the second step of the remelting process is lowered to less than 0.6 kPa P6, L18-22.

6. The method according to claim 1, wherein the relationship between an amount of Mg (Mg_{oxi}) and an amount of Al (Al_{oxi}) is adjusted in the first step of forming a magnesium

oxide so as to meet the following equation:

$$\text{Al}_{\text{O}X\text{I}} \text{ (mass ppm)} / \text{Mg}_{\text{O}X\text{I}} \text{ (mass ppm)} = 5 \text{ to } 100. \text{ P6, L23-27}$$

7. The method according to claim 1, wherein Mg is added into the molten steel as a Ni-Mg alloy which contains from exclusive zero to not more than 20 mass % of Mg **P7, L18-20.**

8. The method according to claim 1, wherein the steel ingot contains 0.01 to 6 mass % of Al **P7, L21, 22.**

9. The method according to claim 1, wherein the steel ingot contains 0.1 to 2 mass % of Ti **P7, L22, 23.**

10. The method according to claim 1, wherein the steel ingot is of a maraging steel **P7, L25.**

11. The method according to claim 1, wherein the steel ingot is of a tool steel **P7, L25, 26.**

12. The method according to claim 10, wherein the maraging steel consists essentially of, by mass, less than 10 ppm of O (oxygen), less than 15 ppm of N (nitrogen), not more than 0.01% C, 0.3 to 2.0% or less of Ti, 8.0 to 22.0% of Ni, 5.0 to 20.0% of Co, 2.0 to 9.0% of Mo, 0.01 to 1.7% of Al, and the balancer of Fe and unavoidable impurities **P7, L27 - P8, L4.**

13. The method according to claim 1, wherein an amount of the additive Mg in the magnesium oxide forming process is not more than 10 to 200 ppm **P12, L21-24.**

14. The method according to claim 1, wherein the steel is of maraging steel, and wherein a maraging steel ingot obtained after the remelting process contains oxide type nonmetallic inclusions having a maximum length of not more than 16.0 μm , and a rate of Al_2O_3 type oxide inclusions to a total the number of oxide inclusions having a size of not less than 10 μm is not more than 66.7% **P30, Table 2.**

15. The method according to claim 1, wherein the steel is of maraging steel, and wherein a maraging steel ingot obtained after the remelting process contains nitride type nonmetallic inclusions having a maximum length of not more than 10 μm **P35, L23-26.**

16. The method according to claim 1, wherein a maraging steel ingot obtained after the remelting process is used as a raw material of power transmission belt of automobiles, which has a thickness of not more than 0.5 mm **P18, L27 - P19, L4.**

Withdrawal and allowance is requested.

Applicants appreciate the Examiner indicating that claim 5 is only objected to as being dependent upon a rejected base claim.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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